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# Introduction to the Wireline Network Mechanisms and Economics

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# Introduction to the Wireline Network Mechanisms and Economics

Drafted by Sam Hart and Rick Dudley

This document aims to provide an overview of the primary financial primitives and transaction flows that comprise Wireline's economic lifecycle.

The Wireline blockchain uses an intrinsic token, WIRE, as well as a native collateralized stablecoin, WUSD, used for complementary purposes within the Wireline network. Wireline also provides developers the capability to tokenize their own decentralized applications, initially for the purposes of offering discounted service. Ultimately, per approval of WIRE holders, project tokens may also be offered as equity, debt, or derivative instruments.

A minimal set of contracts for issuance of WIRE tokens, treasury management, and conversion from ETH or other ERC20 assets into WIRE will be deployed to the Ethereum blockchain. All additional transaction and state transition logic will occur on the Wireline Blockchain, running Tendermint consensus. An optimistic rollup contract will then provide final settlement of events within the Wireline Blockchain on Ethereum.

The Wireline Network provides a minimal set of core services, which together form a complete decentralized application marketplace. These core services include:

- Wireline Naming Service (WNS)
- Wireline Payments Service (WPS)
- Wireline Exchange Service (WXS)
- Wireline App Store? (reputation/WNS + contracts/WPS)
- Wireline Compute Service (WCS)
  - Wireline Query Service (WQS)
  - MegaFeed
  - Launchpad
  - P2P infra (ICE, signal, web proxy, etc. + File)

These services will be deployed in two phases. Phase 1 will include WNS, WPS, and WCS and the Wireline App Store. Phase 2 will then enable Project-specific token issuance and the WUSD stablecoin with WXS. Here we summarize, in broad terms, how these services interact as an integrated economic system.

*For a detailed technical specification of the Wireline protocol and core services please see \_\_\_\_.*



## Wireline Asset Types

Economic activity within the Wireline network is coordinated via assets designed with specific financial utility. The properties of the native asset types is described below, as well as the role external assets such as ETH or DAI, may play in issuance of Wireline's WUSD Stablecoin.

### WIRE

WIRE is the native token used to secure the Wireline blockchain. WIRE is divisible into units of 100,000. Validators stake WIRE deposits to participate in validation and WIRE tokens are issued to validators by the Wireline protocol for producing valid blocks and processing transactions submitted by users of Wireline services.

The price of Wireline's blockchain transaction fee is set in WIRE by participating WIRE holders by weighted vote of staked WIRE tokens. Transaction fees are paid in WIRE to a globally pooled escrow and proportionally distributed to compliant validators each epoch (approximately once per month), according to the fractional volume of transactions processed.

By owning tokens, WIRE holders are eligible to delegate their stake toward the consensus validation process and thereby receive a share of the block reward, paid in WIRE. Validators may then stake WIRE tokens on behalf of holders in exchange for a commission, priced and denominated through an independent arrangement between the two parties. Any staked tokens are subject to forfeiture in accordance with protocol slashing conditions, whereupon the slashed tokens will be burned. In the event of fraud, new tokens will be minted, equal to a 5% of those slashed, and distributed to whomever supplied evidence of wrongdoing.

An ERC20 token contract deployed to Ethereum will issue all 1.5 Billion tokens, which will be allocated according to the Wireline blockchain transaction rules and settled via a controller contract on Ethereum. The genesis block will include an initial allocation of WIRE with the following distribution: 7.5% to the Wireline team and 20% to pre-sale participants. At genesis, recipients of pre-allocated WIRE will need to demonstrate use, either staking or delegation to claim these tokens. Token transfers for these assets will remain non-transferable for one year, after which assets will be unlocked each epoch at a constant rate over the subsequent 4 years.

The Wireline Foundation will be established as a legal entity acting on behalf of an on-chain administrative system, whose membership will be comprised of WIRE holders. To ensure the Wireline Foundation is never in control of greater than one third of the total supply at any time, the Foundation's initial token allocation will be distributed incrementally as half of the total block reward.

The economic design of the Wireline Network aims to ensure 100% utilization of WIRE tokens, which is achieved both by incentivizing usage via staking rewards, and by penalizing inactive holdings. This has several advantages when compared to existing blockchain-based service network designs: improved incentive compatibility for provisioning validation and other network services, long-range attack deterrence, and clearer regulatory classification of economic activity within the network.

All WIRE tokens should be locked for staking within the network, unless intentionally unstaked in advance of transactional action. To determine whether unstaked coins are truly “active,” a unique VDF challenge will be issued to every unstaked UTXO at the beginning of each epoch.

A valid response to the VDF challenge will exempt all corresponding tokens from penalization. Anyone may submit a valid unsigned response to any challenge in order to preserve plausible deniability of token holders. Of the remaining inactive pool, a token-weighted random draw will determine a subset of assets, to be destroyed. A new set of tokens, equal to 5% of the WIRE destroyed, are then issued to the validation reward pool and redistributed at the next epoch.

To attract an initial validator set and to capitalize the Wireline foundation, WIRE tokens will be emitted at a rate of 20000000 WIRE / epoch, decrementing by 190000 tokens / epoch until a fixed supply limit of 1.5 Billion WIRE has been reached, at which time new tokens will be emitted only upon destruction of inactive tokens. Half of this block reward will be allocated to validators and half will be allocated to the Wireline Foundation.

By staking WIRE, token holders may participate in the governance of the core protocol and those of core services. Wire holders will also be responsible for the adjustment of core service parameters and appointment of Wireline validators.

## WUSD

*Note: Wireline’s stablecoin system provides a medium of exchange that meets the network’s censorship resistance requirements, however the Wireline team is closely tracking other stablecoin systems, and may consider replacing WUSD with an exogenous stablecoin given sufficient evidence such a token meets the needs of the Wireline network. Currently DAI is the most promising candidate, however the governance implications of the Maker system must be fully evaluated.*

Completion of Phase 2 will permit the creation of WUSD, a stablecoin used to pay for services via the Wireline Payments Service (WPS). WUSD is a collateralized synthetic, targeting the United States Dollar (USD), which represents a claim against other cryptographic assets. Collateral assets will include WIRE, Project tokens collateralized by WIRE, and cryptographic assets bridged from external blockchains, such as ETH, together with a diversified basket of

stablecoins. The initial set of collateral assets is still under review and subject to change prior to deployment. Issuance of WUSD will be permissionless, with collateralization ratios equilibrated economically via programmatic supply curves in response to price feeds and curve parameters secured by Wireline Governance.

Wireline's price oracle will be established as a median of independent exchange rates between USD and all other collateral assets, written periodically to the Wireline blockchain by a set of exchange rate providers, whose membership will be determined by WIRE holders. The Wireline price oracle will be secured by a failsafe global liquidation mechanism which may be triggered by any WIRE holder or price feed provider. Once stabilized, Wireline's stablecoin contracts may migrate to using a market-based price oracle, determined via the median of multiple USD-targeted stablecoins. Such a change would be determined by Wireline Governance.

## Project Tokens

In Phase 2 of Wireline's deployment open source projects will be funded through the issuance of project-specific tokens. Project tokens are minted by locking WIRE in a bonding curve contract, with issuance varying as a function of the number of project tokens in circulation. Reciprocally, this bonding curve contract enables conversion of issued project tokens into WIRE, with the amount of unlocked WIRE varying with respect to the outstanding supply of project tokens.

While optional, project tokens will allow developers to more precisely control the supply-side economics of their services and pool liquidity by modulating preferential discounts. Project token issuers will be required to collect identifying information from project token holders, or outsource the collection of this information to a third party, in compliance with local AML/KYC regulations.

At a later date, a Wireline Governance vote may elect to allow Project tokens which represent fractional ownership of a service, including governance rights or claims on future cash flows. They may also permit the creation of services which act as debt instruments. However, upon launch Project tokens may only be minted with submission of working code and will be redeemable for discounted project services.

## Core Services

Wireline's core services provide the essential functionality for an application ecosystem and marketplace for open source developers to publish their software and generate revenue by offering metered service, and eventually claims on future cash flows, or other forms of equity, per approval by Wireline's Governance. The following is a synopsis of these services and how they interact with WIRE, WUSD, and exogenous cryptographic assets.



## Wireline Payments Service (WPS)

The Wireline Payments Service is a state channel mechanism for transacting within the Wireline network. All service payments are made through WPS by first submitting a transaction to the Wireline blockchain to open a channel, and locking the desired tokens (WIRE, WUSD, Project-tokens, or other cryptographic assets) to create correspondent state channel vouchers, which may then be used to pay for Wireline services. Closing a channel to settle a transactional relationship will also require a transaction fee, paid in WIRE.

Initially, WPS will also allow network participants to lock ETH, DAI, or other ERC20 tokens on the Ethereum blockchain to be used for Wireline services or as collateral in Wireline's stablecoin contracts. Additional chains may be added in accordance with a vote by WPS Validators.

## Wireline Exchange Service (WXS) and WUSD Stablecoin Contracts

The Wireline Exchange Service is a federated exchange for trading cryptographic assets within the Wireline Network. Anyone may permissionlessly offer WXS services, at which point WXS service providers will have the responsibility to monitor trades and list or delist token pair offers in compliance with appropriate jurisdictional regulations.

Project token issuers will be responsible for collecting AML/KYC for all token holders and managing a whitelist which will be made available to WXS providers, permitting them to fill exchange orders. AML/KYC information collection and compliance may also be outsourced to a third party contracted service.

WIRE holders may choose to allow the registration of Project equity tokens, debt, or derivatives, however to facilitate the transaction of these instruments, members of the WXS Federation will be required to register as broker-dealers, in accordance with local regulations. WUSD may be subject to money transmission laws, and in such cases WXS Federation members facilitating the transmission must register as money transmitters, per local regulations.

The WXS will act as a backend currency conversion system, allowing payments denominated in WUSD, or other tokens, to be exchanged for WIRE upon delivery of payment to service providers. As such, end-users will have access to a simple and convenient payment interface, while ensuring all transactions contribute to the security of the network. Because all Wireline transactions must be paid in WIRE, transactions fees denominated in WIRE are expected to be offered at a discount with respect to other tokens. Similarly, transactions denominated in WUSD should reduce transaction costs associated with price variability, while being the most easily convertible into WIRE. Thus it is expected that typical service payments will be denominated in

WUSD unless a service opts to attract liquidity by offering their services at a discount in exchange for Project tokens.

## Wireline Naming Service (WNS)

The Wireline Naming service is a public registry for the resolution of all application protocols, unique identifiers, and available service runtimes.

Developers must pay a fee to register their applications. This fee reserves the exclusive rights to a portion of Wireline's namespace for a limited period. Registrants may also post an additional sum of WIRE in escrow, which will be automatically drawn down on a yearly basis to renew the registration contract. Entries may be unregistered at any time, at which point the escrow will be dissolved the remaining balance returned to the registrant.

Wireline will launch with a registration price between 3-10 WUSD/year for the first 6 months, after which the global WNS registration price may be set by WIRE holders via token-weighted vote.

WNS will be a permissionless registry, however, in order to surface quality entries, WNS incorporates a stake-weighted rating mechanism. Participants may stake WIRE on any entry in the WNS registry in order to signal their support for that item. WIRE staked on WNS entries will be subject to WNS slashing rules and qualify stakers for remuneration in exchange for contribution of accurate information.

## Wireline Query Service (WQS)

The Wireline Query Service offers cryptographically signed query and lookup services, which can be independently verified by any WQS node. Query providers must deposit WIRE in order to participate in the WQS protocol. Queries are made through a state channel in conjunction with a WPS transaction to compensate the WQS provider in WUSD.

Wireline will launch with a price between 0.01 WUSD/KB for the first 6 months, after which the price will float according to the price of contracts submitted to WNS. WQS providers may also elect to subsidize a "free tier" for simple or pre-cached queries.

## MegaFeed

MegaFeed is a peer-to-peer replicated database providing data for all Wireline applications. MegaFeed data will be provided at no cost by peer application users.

## Wireline Compute Service (WCS)

The Wireline Compute Service is a network of distributed nodes available to perform compute services on a contractual basis. Similar to Wireline Query Services, service providers participate in the WCS marketplace by placing a slashable WIRE deposit in escrow, permitting the offer of a storage contract, priced in WUSD, to be posted to WNS.

## Launchpad

The Launchpad will serve as an interface for end-users to discover and purchase Wireline services. The launchpad provides this experience by bundle existing Wireline services, adding no new economic functionality in itself, and rather providing a familiar “App store” experience.

## Governance

WIRE holders may participate in governance of core service protocols, and their respective parameterization by staking WIRE tokens, thereby signalling their voting preference in the staking transaction. WIRE tokens may be simultaneously staked on multiple referenda.

WIRE holders may also choose to buy out a project service, incorporating them into the suite of core protocol services.

The Wireline team is currently evaluating several pre-existing blockchain governance interfaces, including Aragon, DAOStack, and Open Source Coin, with the intention of choosing a robust and intuitive platform for WIRE holders to participate in Wireline’s essential administrative processes.

## Network Forks

In case of a consensus failure in which two validators sets, each representing greater than one third of the total validator pool, begin building two distinct chains, steps must be taken to ensure



assets held in escrow on other blockchains are valid in the state of only one fork. The owners of these assets must escrow them with contracts that preserve this atomicity.

## Conclusion

This summary of the Wireline Network's economic structure is accurate upon the date of writing. This document does not constitute a final specification and the contents herein are subject to change at the discretion of the Wireline team.

This document has yet to be reviewed by legal counsel and as such we do not make any claims as to the legality of the network token or the incentivization mechanics supplied by the network to WIRE token holders.